Section 5.2

Algebra II: Systems of Equations—Solve by Substitution

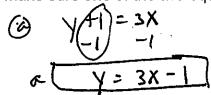
Essential Questions:

Is there a more exact way to solve systems of equations than by graphing?

Substitution Example 1



- Use the following equations:
- Make sure one of the two equations is solved for Y or X, whichever is easier.



• Substitute the value of Y in the other equation. Then solve for X.

$$\frac{5x}{41} = 9 \\ +1 \\ \frac{5x}{5} = \frac{10}{5} \\ x = 2$$

• Substitute your X value in one of the equations. Find the value of Y.

(b)
$$J(2)+y=9$$

 $Y+y=9$
 $Y=5$
k: Is $J(2,5)$ a solution for both equations?

$$y+1 = 3(2)$$

 $y+1 = 6$
 -1 -1
 $y = 5$

Substitution Example 2



- Use the following equations: (x) = 2y

- Make sure one of the two equations is solved for Y or X.

Substitute the value of 🕇 in the other equation. Then solve for 🛣 🤟

(3y) +y = 6

$$\frac{3}{3}y = \frac{6}{9}$$

 $\frac{3}{3}y = \frac{6}{9}$

@ X = J(2)

Check: Is (4, 2) a solution for both equations?

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(a)
$$(4) = 2(2)$$

 $4 = 4$

watch http://www.youtube.com/watch?v=73Trg YVmX08

Name _____

5.2 Systems Of Equations—Solve by substitution.

Solve by substitution.

1.
$$y = 4x$$

 $x + y = 10$
2. $y = 3x$
 $x + y = 20$

2.
$$y = 3x$$

. $x + y = 20$

$$4. \ x = 3y$$

$$5y - x = 8$$

$$5. x = y + 2$$
$$3y + x = 14$$

3.
$$y = x - 2$$

 $x + y = 12$

6.
$$y = -x + 3$$

 $3y - 1 = 5x$

$$\begin{array}{c}
\bigcirc \\
7. y = 2x \\
\bigcirc \\
X + y = 9
\end{array}$$

$$\begin{array}{c}
X + (JX) = 9 \\
X + JX = 9 \\
\hline
3X = 9 \\
\hline
3X = 3
\end{array}$$

(3) +
$$y = 9$$

(3) + $y = 9$
3 + $y = 9$
-3
(3)
(3)
(3)
(3)
(3)
(4)

$$\begin{array}{c}
0 \\
8. \ y = 2 - x \\
\hline
9 3x + (y) = 8 \\
3x + 2 - x = 8 \\
\hline
2x + 2 - x = 8 \\
\hline
-2 - 2 \\
\hline
2x = 6 \\
\hline
2x = 3
\end{array}$$